treatment the prospect of removing this difficulty is generally very good. In one of my cases the cure is already complete; in the other, it is well started, with every prospect of an early disappearance of the defect. In many cases it is probably only a question of delayed development, so that normal facility would be reached later without special training.

In only two of the cases had the patient reached adult life with a very marked degree of alexia remaining. But we have to recognize that the defect may be permanent, and the best that can be done for the patient will be to cease efforts to learn to read when these can properly be regarded as hopeless, and to turn the attention to training by the ear; and in other ways, to supplement the necessarily defective powers of the individual.

CLINICAL OBSERVATIONS ON ULCER OF THE STOMACH.[1]

By J. Henry Schroeder, M.D.,
of Cincinnati.

It may be said of ulcer of the stomach that it is a disease which is only rarely, in all its stages, accompanied by symptoms that might be called typical; that its course is uncertain, and that treatment does not always lead to cure of the condition.

I contribute, therefore, the observations in the following case because of the several, and some unusual, complications which accompanied the ulcer; also because of the well-defined clinical course, and finally, the prompt recovery of the patient. In discussing some of the features of this case, and of the treatment of the condition in general, I would recall some facts which are of considerable interest and deserve special attention.

Patient, Mr. E., aged thirty-three years, merchant by occupation, came under my care December 2, 1904, complaining of stomach trouble of long standing.

The history taken at that time is as follows:

Family history: Negative.

Patients previous history: Negative. Has never been addicted to alcoholics. Tobacco has been used with moderation.

Onset of the present condition: Ten years ago, while travelling, patient first noticed signs of indigestion. The condition has steadily become worse, notwithstanding almost constant medical treatment. The patient has lost about twenty pounds in weight during that time.

Appetite: Fairly good, but the patient is afraid to eat because of the pain the food, as a rule, produces.

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[1] Read before the Academy of Medicine, Cincinnati, October 30, 1905.

Vomiting occurs frequently, about one hour after food is taken, especially when the pain is severe. The vomiting relieves the pain. It is not preceded by nausea. The vomited matter is sour and ill smelling. Eructations have, of late, been more or less constant, beginning about two hours after taking food, and continuing for some length of time if the patient does not vomit. The ructus is of unpleasant odor. Mr. E. states that he has never vomited blood, and that he has never observed blood in the stools.

The pain and discomfort is felt chiefly in the epigastrium; also in the right and left hypochondriac region. The pain is most severe about one hour after eating, and there is more or less constant feeling of weight in the stomach. Attacks of pain frequently come on during the night.

Intestinal evacuations are fairly regular. The stools are formed and light in color.

The diet has consisted chiefly of albumen-water, milk, rice, and eggs.

The patient has abstained from meat because it would aggravate the pain.

Physical Examination. The patient appears fairly well nourished. Weight 130 pounds. The facial expression suggests suffering and depression. The general appearance does not indicate cachexia. The tongue is thickly coated. The breath extremely offensive, suggesting H_2S.

Abdomen: Contour normal. No tumor visible or palpable. There is marked tenderness in the median line, extending from the umbilicus for a distance of three fingers' breadth toward the sternum. By palpation the stomach is found to extend to two fingers' breadth below the umbilicus; by percussion the greater curvature is found to be three fingers' breadth below the umbilicus. Clapotage can be easily elicited.

Boas dorsal "Druckpunkt" is absent. The general examination is otherwise negative. The urine contains no abnormal ingredients.

The examination of the stomach was completed the following morning after the Ewald test-breakfast. At that time the patient stated that he had suffered all night. He vomited at 4 A.M. a large quantity of sour fluid, after that he felt relieved. "The stomach felt empty." Since that time the patient has had nothing by mouth (no water), with the exception of the test-breakfast at 7.15 A.M. At the time of the examination the patient said he felt uncomfortable, stating, again, that the stomach felt heavy. I passed the tube for the aspiration of the stomach contents, and obtained 1080 c.c. of fluid, with ingested test-breakfast.

The contents were sour; odor of H_2S. The fluid fairly clear. The particles of food were coarse. Macroscopically there was no blood.

After the evacuation of the stomach the patient felt relieved but weak.

ANALYSIS OF THE CHYME.

Total quantity	1080 c.c.
Free HCl	50
Total acidity	80
Pepsin (Mette)	4 mm.
Lab.	positive

The test for occult blood showed traces.

Diagnosis: Gastric ulcer, involving the anterior wall of the stomach, near the lesser curvature, in the region of the pylorus.

Associated conditions: Gastrosuccorrhœa with hyperchlorhydria. Pylorospasm, and gastrectasia of marked degree.

Course and treatment: From the irregularity of the symptoms of pyloric obstruction, notwithstanding the degree of dilation of the stomach, and from the, as a rule, regular movements of the bowels, I felt assured that the obstruction of the pylorus was not of an organic character, but purely spasmodic.

There being no indications for surgical intervention, it was not further considered. I made a guarded prognosis as far as a lasting recovery was concerned.

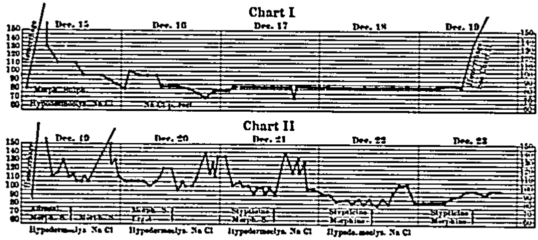
The patient was removed to the hospital the next day, December 3. On the previous evening an injection of morphine and atropine had been given to insure rest. Nothing was given by mouth during the next twenty-four hours. Upon arrival at the hospital, a rectal feeding of peptonized milk was given. At the time of admission, the patient was much depressed. During the night 660 c.c. of fluid was vomited, stained a dark-green. The patient also complained of a thumping pain in the stomach.

During the next eleven days the treatment was briefly as follows:

From the first to the fourth day nothing was allowed by mouth. Nutritive enemata consisting of six ounces of peptonized milk, with an egg, mixed with a teaspoonful of sugar, a little salt and ten drops of tincture of opium were given, at six-hour intervals. In view of the dilatation of the stomach and possible accumulation of fluid, I washed the stomach every second day with a weak solution of sodium bicarbonate, followed by plain water. The stomach remained empty during these days, the fluid returned clear during the lavage, and the quantity returned was the same as that introduced. On the fifth day the patient pleaded for some water to drink, and I permitted him to take a mixture of egg-white and water. This was well tolerated. There were no ercutations. On the seventh day some peptonized milk in one-ounce doses was substituted for the albumen-water. The nutritive enemata were continued, however. This careful early mouth feeding was desirable as a test, because the patient insisted on leaving the hospital at the end of two weeks, and rectal feeding could after that not be relied upon. The peptonized milk was also well tolerated. On the seventh day some cream was added to the milk. By this time the stomach had contracted to normal size. In order to determine the motor function, I gave lavage on the eleventh day. There was no residue in the stomach from the feeding of the previous evening.

Later in the day the patient complained of cramps in the bowels, which were relieved by the passing of flatus. As a precaution I also gave lavage in the afternoon. The stomach was empty three hours after feeding of milk and cream.

Three hours after this lavage, I was called to the hospital. The patient complained of considerable pain in the stomach, and stated that the stomach felt heavy. I passed the stomach tube and aspirated 250 c.c. of fluid rich in free HCl, and tinted a dark-green. Lavage was then given, and the patient felt comfortable.



Charts showing the variation and condition of the pulse after hemorrhage from gastric ulcer.

CHART I.—Hæmatemesis. Bloody stools during the next three days.

CHART II.—Internal hemorrhage. Later hæmatemesis. Continued hemorrhage during two days.

Hemorrhages. The next day (the twelfth) the patient suddenly had a severe hemorrhage, vomiting a large quantity of blood. He appeared to be in quite a serious condition. I ordered the usual steps taken. Hypodermic injections of morphine, application of ice to the epigastrium, elevation of the foot of the bed, bandaging of the lower extremeties, and a sufficient quantity of physiologic salt solution to sustain the circulation. The pulse had been imperceptible, but within two hours was brought down to 130, and under the circumstances of satisfactory quality. The sensorium remained clear, and the patient did not complain. High rectal injections of normal salt solution were given during the day, as required. At midnight the pulse was ninety and of good qualtity. During the next day the pulse rate varied from 84 to 60. During three days after the hemorrhage bloody stools were passed. The administration of morphine had been continued in diminished doses. From the second day after the hemorrhage, nutritive enemata of small bulk were given at long intervals.

Recurring Hemorrhages. On the morning of December 19th, four days after the first hemorrhage, and on the sixteenth day of his hospital residence, the patient suddenly became dizzy. The pulse could not be counted—in short, the patient had another hemorrhage. No blood was vomited at that time. I ordered the measures that have been described under the first hemorrhage. When I reached the hospital, twenty minutes later, the general condition of the patient had somewhat improved and the pulse was again perceptible. The patient's color could only be compared with that of sulphur. The body temperature had to be sustained with hot water bottles. He had not vomited blood, but soon a large quantity of blood was passed by the bowel. The pulse showed no satisfactory improvement, but was suggestive of the continuance of the internal hemorrhage. Under these circumstances, the immediate outlook was extremely unfavorable, and to satisfy the family I called for surgical consultation. The surgeon, who saw the case, agreed with me upon the hopelessness of surgical interference.

I kept the patient under morphine, and early in the day combined its use with adrenalin without the desired improvement taking place. During the day the patient complained of being nauseated, and in the evening vomited partly digested blood. The condition remained extremely critical during the next forty-eight hours. On the second day ergot was substituted for the adrenalin, but without change in the condition. After midnight on the second day, I administered, by hypodermic injection, stypticine 0.10, every two hours. Soon after the first injection the pulse improved markedly. I do not wish to attribute this coincident to the use of stypticine unreservedly, but shall refer to it later. The stypticine was at times combined with morphine in the same manner that morphine had been given in conjunction with the agents previously employed. The anemia was so great that there was continuous jerking of the extremities and trembling of the whole body. This condition lasted for about five days. During three days after the second hemorrhage, hypodermoclysis of normal salt solution was given occasionally, as needed to sustain the pulse.

Nothing was given by rectum during that time, but the colon tube was passed regularly to prevent the accumulation of gas and distention of the bowels. After the third day rectal injections of salt solution were given, and on the fourth day the patient's condition necessitated rectal alimentation. The patient had virtually been sustained by rectal alimentation during the previous three weeks. Milk, peptonized for three hours, was given in six ounce doses, six hourly.

On the sixth day sips of ice-cold albumen-water were allowed, not by choice, but to relieve the patient's unsufferable desire for fluid by mouth. This fluid was well tolerated; there was no gastric distress, and no eructations. On the eighth day, milk peptonized for one hour, with a little milk-sugar, was given by mouth, and was well tolerated. The rectal feeding was continued until the twelfth day after the last hemorrhage (until January 1, 1905.)

At that time, mouth feeding was gradually and carefully increased, and two ounces of olive oil were given in the morning. To the peptonized milk there was soon added a raw egg, oatmeal gruel, or cane sugar. Gelatine preparations were also allowed. Until the twenty-second day after the hemorrhage there had been at least occult blood in the feces. Since that day the stools have been regular, formed, light yellow in color, and each examination for occult blood has been negative. Beginning with the twenty-second day, fish was permitted, and soon after that chicken, squab, rice and butter. The principal articles of diet, however, were milk and raw eggs, well-cooked oatmeal or rice, and softened toast.

The very thick coating upon the tongue, observed when the patient first came under treatment, subsided gradually under this feeding, until the tongue became quite clear. After a feeding the patient was placed as much as possible upon his right side. When a fairly large quantity of fluid had been given, the current forced through the pylorus could be distinctly observed by palpation.

It has been previously stated, that even before the occurrence of the hemorrhages, the dilatation of the stomach had subsided, and that at that time the stomach promptly emptied itself after meals (fluid).

On the twenty-fourth day after the last hemorrhage, the iodipine test was positive in sixty minutes, and this was accepted as further evidence of normal gastric motility.

From the time of the last hemorrhage, the patient has not had pain in the stomach and no discomfort after eating. The local tenderness lasted until the ninth day, being less marked from day to day, until it could no longer be elicited.

I desired to give the patient the continued benefit of the carefully regulated hospital regimé, but the patient insisted upon leaving the institution Jan. 21, 1905, forty-eight days after his admission, declaring that he felt better than he had during the past ten years, and a living protest against the theory that chronic gastric ulcer is amenable only to surgical treatment.

The patient's weight on admission to the hospital was 130 pounds. I shall not attempt to estimate his weight at the height of his prolonged starvation. On the 17th of January he again weighed 118 pounds. On the 22d, 121 pounds. On Feb. 1st, 134 pounds. Feb. 8th, 140¾ pounds. During March, the patient had an attack of la grippe, from which he recovered. His weight at the present time is 155 pounds, and his general condition is good. There remains only a slight pallor, but aside from the low color index, the blood examinations have been negative.

In all respects the patient is well. While his food is prepared with discrimination, he is by no means on a restricted diet. He enjoys his food. There are no symptoms of pyloric obstruction, I regard the ulcers as healed, and the patient cured from the condition.

The marked degree of gastric dilatation which existed in this case becomes of special interest, when the rapidity is considered, with which the condition subsided under treatment. In itself, it should, perhaps, have had considerable weight in the consideration of surgical interference. Gastrosuccorrhœa in connection with gastric ulcer is by no means an unrecognized condition. In many cases, there is a hyperchlorhydria with more or less increase in the quantity of gastric juice. The relationship of this secretory disturbance to ulcer is still debatable. It is certain that the acid secretion retards or prevents the healing of gastric ulcer.

Gastrosuccorrhœa is to be differentiated from an accumulation of gastric juice due to an obstructed outflow. Howard (AM. JOURN. MED. SCIENCES, Dec., 1903) has recently made reference to the observation, that where "Reichmann's disease" exists to an extreme degree the cause has been found to be an old cicatricial stenosis of the pylorus or the duodenum. It is probable that in the cases referred to by him there existed in reality an accumulation and not a hypersecretion. Gastrosuccorrhœa may only be diagnosed, when the secretion continues independently of the digestion of food, that is, in the empty stomach. It is probable, that it is due to the irritation of nerve endings in the ulcerated area. In this case, the association of these attacks with periods of depression was very noticeable.

Kaufman (AMERICAN JOURNAL OF THE MEDICAL SCIENCES, April, 1904), in reviewing this subject, cites a case of chronic ulcer, carcinomatous, accompanied by a chronic gastrosuccorrhœa, in which 750 c.c. were removed from the stomach after the patient vomited.

In the case that I have reported, the gastrosuccorrhœa, was not accompanied by tetanic attacks, evidently, nor were these induced by lavage.

The hemorrhages in this case evidently originated from different sources: The first from an ulcer situated in the stomach near the pylorus; the second from an ulcer situated within the pylorus. After the second hemorrhage the patient's condition was most alarming, and I feel assured, that had the patient not been in the hospital, he would not have recovered. The accompanying chart illustrates the variation of the pulse rate after the hemorrhages, and also the effect of drugs upon the hemorrhage. It is probable, that in hemorrhage of this kind, morphine, absolute rest, and the physical means described above are in themselves sufficient to cause a cessation of the bleeding. Anything that has a tendency to raise the blood pressure more than to sustain the patient is contraindicated. When the patient has lost so much blood that he is practically exsanguinated, as in the case reported, recourse to one or the other of the many drugs suggested becomes natural. I believe, that the slow administration of the isotonic salt solution is by far the simplest and most rational measure. It has an additional advantage, in that it relieves the thirst of the patient.

It seems to me illogical, to attribute to adrenalin, when given internally any value as a hemostatic. Applied to the bleeding surface, it certainly possesses this property. When injected into the circulation, the effects are about those which are observed after the administration of the salt solution, but it does not possess all the advantages of the latter.

Against the seeming efficiency of the stypticine in this case, it might be urged, first, that the length of time elapsed after the hemorrhage was in itself sufficient to allow a cessation of the hemorrhage. Second, that the stypticine is an opiate, and that an increase of the morphine would have brought about the same result.

The method of feeding patients under treatment for gastric ulcer is always of greatest importance. The indications are easily recognized, and depend upon the condition of the stomach. Food by mouth may be entirely prohibited, necessitating rectal feeding. This meets the first requirement for the healing of an ulcer: Rest of the stomach from excessive secretion and muscular contraction. This becomes imperative, when the stomach for any reason does not empty itself.

If feeding by mouth may be permitted, non-irritating fluids are given. Milk has long been regarded as the most valuable food in carrying out the "ulcer cure," especially valuable because of its combining power with free HCl. As a matter of fact, milk ceases to have all the advantages of a fluid food when it reaches the stomach. When an excess of hydrochloric acid is present in the gastric secretion, the curds precipitated by the free HCl and lab are exceedingly tenacious. They are but partly and slowly digested in the stomach, especially when there is impaired motility. I have known these curds to be so firm, that the stream of water during lavage could not disintegrate them, and the patient vomited the masses after the lavage. These curds may aggravate all the conditions which are the cause of the discomfort of the patient.

In order to prevent the precipitation of the curds it has been recommended that the milk be modified, diluted, or peptonized. I cannot too highly emphasize the importance of the thorough and prolonged peptonization of the milk. My practice is to peptonize for one hour. It can easily be demonstrated, that milk predigested to this extent does not precipitate the objectionable curds and requires no dilution.

It is well tolerated where the unprepared milk produces discomfort.

When given ice-cold, the bitter taste is not so objectionable to the patient. The addition of cream is of advantage; it enhances the nutritive value, and the fat has a tendency to lessen the irritability of the mucous membrane of the stomach, and to check an excessive acid secretion.

To this peptonized milk and cream, there may be added, as circumstances permit, milk-sugar, sugar, oat-meal gruel, and an egg. Rectal feeding may, for a limited time, take the place of mouth feeding. I say for a limited time, because all the patients fed by rectum exclusively receive an insufficient amount of food to replace waste. Even where no malignant condition exists, these patients loose weight. The physical condition of the patient during and after prolonged rectal feeding will depend largely upon the state of nutrition before the rectal feeding is instituted. The patient who has been virtually starved before the rectal feeding is resorted to, is ill fitted for prolonged and exclusive rectal alimentation. It has been my experience, that not even thirst can, for any length of time, be satisfied by the administration of fluids by rectum. This may, in part, be due to the sense of dryness in the mouth and throat. As to the absorption of food from the large bowel, it seems probable, that the simpler the composition of the food the more readily will it be absorbed. It is also probable, that the absorption is a process of simple transfusion, and that only substances in perfect solution are taken up. Thus, while substances may be injected in the form of an emulsion or in suspension, they are altered in the intestine, in such a manner, that the decomposition products pass into solution. The lower bowel does not secrete digestive fluids. It may contain amylolytic and proteolytic ferments from the small intestines, which act upon the food in the colon. The food is also decomposed or altered by the bacterial contents of the bowel.

It is evident from the character of the food usually given, that digestion in the bowel is expected. Some advise that pancreatic extract be added to the food. Peptonization is also largely practised. I employ as nutritive enemata in gastric ulcer chiefly milk and eggs, peptonized for three hours, to which is added sugar and salt, and if necessary, ten drops of tincture of opium. From four to six ounces of this mixture are given every six hours. I believe it is inadvisable in the treatment of gastric ulcer to give enemata of the various preparations of meat, meat extracts, etc., for one may not feel assured that such meat preparations will not reflexly give rise to secretion of gastric juice with its acidity. It is doubtful whether some of the artificial liquid "foods" containing alcohol are advisable. The patients are, as a rule, quite as comfortable without the alcoholic stimulation. The absolute food value of these preparations is too low, and may be easily replaced. Under certain conditions, as after operations, where rectal feeding is reported for a few days only, an admixture of dilute alcoholics may be of advantage.

At what stage one may consider the patient cured is uncertain. It is not possible to determine clinically the stage when an anatomic cure of the condition has been accomplished. Clinically, it seems reasonable to assume that when a patient is free from discomfort after taking food, when there is no tenderness, when the motility of the stomach is normal, and there is a continuous absence of occult blood in the stools, where these symptoms have previously existed, that the ulcers are healing. If the patients remain free from symptoms for months, one may assume that the ulcers have healed. In the case above reported, while the skin was so poorly nourished that bed-sores could not even with utmost care be prevented, and were extremely slow to heal, the ulcers of the stomach were healing rapidly. It is highly probable that on account of the severe anæmia there was a greatly diminished secretion in the stomach, thus confirming the hypothesis, that the gastric juice actively prevents the healing of ulcers.

After the patient has been discharged as cured, one may expect one of three conditions. First, the patient may remain permanently free from symptoms. Second, there may be cicatricial contraction with stenosis and deformity. Third, there may be recurrence of the ulcers with or without cicatricial obstruction.

In order that the patient remain well, it is of greatest importance that the patient take care of his general health, and avoid all irritation of the stomach by unsuitable food and drink.

The formation of cicatrices is, of course, the aim of all treatment for this condition. It lies not within our power to prevent the possible consequences—contraction and, perhaps, obstruction. When the latter occurs, the only service the physician can render the patient is to make an early diagnosis, and advise surgical interference. Personally, I have had no experience with drugs, such as thiosinamine, which are calculated to "soften the scar tissue." It seems to me an entirely irrational principle, and a useless attempt.

After months and years the symptoms of gastric ulcer may return. Just why there should be this predisposition to the condition in some patients is not clear, and is in keeping with the more or less obscure etiology of gastric ulcer in general. In recurring attacks, before the patient is placed under medical treatment, one should be sure, that there is no cicatricial obstruction of the pylorus.

Surgical Treatment. Surgical treatment is indicated only when there is organic obstruction, either cicatricial or by adhesions, or when there are frequently recurring hemorrhages. The operations performed may be gastroenterostomy, excision of the ulcer, or plastic operations upon the pylorus.

It is the experience of surgeons that, where artificial communication is established between stomach and bowel, good results are obtained only in cases with pyloric obstruction. It is, therefore, unlikely that one may promise the patient relief by this operation, where prolonged medical treatment has been without result, and where there is no organic obstruction. The desire to obtain "physiological rest" and "drainage" should not be the temptation to operate in these cases. Gastroenterostomy does not produce these conditions in a stomach with an unobstructed pylorus. This has been shown by the experiments of Cannon on animals, and these have been sustained by the weight of clinical experience. The food continues to pass through the pylorus, and not even fluid will pass through the artificial opening by reason of gravity alone. Instead of creating "physiological rest" and "drainage," these experiments and operations have only reaffirmed the physiological principle that contents are expelled from the stomach by means of muscular force only. Food leaves the stomach by the path of least resistance. In the stomach in which an artificial opening has been made by means of gastroenterostomy, and in which the pylorus is not mechanically obstructed, the current meets less resistance at the pylorus than at the artificial opening. It is also probable that the artificial opening *closes* during muscular contraction of the organ, and that it requires considerable force and resistance at the pylorus to force the edges of this opening apart. These facts would explain the absence of results in all but suitable cases.

ACUTE APPENDICITIS THE RESULT OF A FOREIGN BODY.

A REVIEW OF THE LITERATURE, WITH A REPORT OF A CASE.

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It is not many years ago that the popular belief was that appendicitis was the result of some foreign body, such as grape or lemon seeds, having been swallowed and then found lodgement within the appendix. Further study, however, of this disease has shown that in the great majority of cases the inflammation is the result of the same causes that produce inflammation elsewhere in the body and a foreign body is but rarely found. That this is true has been clearly shown by many recent observers: Mitchell[1] notes that in 1600 autopsies he found eight grape seeds, five metallic objects, and five miscellaneous objects. Fitz[2] collected 152 cases of perforative appendicitis, and found foreign bodies in 12 per cent. and fecal concre-

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[1] Medical Record, New York, 1904, vol. lxvi. p. 935.

[2] Transactions of the Association of American Physicians, 1886, vol. i. p. 110.